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IN THE

Supreme Court of the United States

KSR INTERNATIONAL CO.,

Petitioner,

v.

TELEFLEX, INC., *et al.*,

Respondents.

On Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

BRIEF OF TESSERA, INC., QUALCOMM INC., AND AMBERWAVE SYSTEMS CORPORATION AS *AMICI CURIAE* IN SUPPORT OF RESPONDENTS

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TABLE OF CONTENTS

Page

TABLE OF AUTHORITIES iii

INTEREST OF *AMICI CURIAE* 1

SUMMARY OF THE ARGUMENT 3

ARGUMENT 4

I. THE FEDERAL CIRCUIT'S TEACHING-SUGGESTION-MOTIVATION STANDARD IS CONSISTENT WITH BOTH THE PATENT ACT AND SUPREME COURT PRECEDENT. 4

A. The Teaching-Suggestion-Motivation Standard Has Long Been Applied By The Federal Circuit And Its Predecessor. 4

B. The Teaching-Suggestion-Motivation Standard Is Consistent With This Court's Decisions. 6

C. The Criticisms Of The Teaching-Suggestion-Motivation Test Offered By Petitioner And The United States Are Based On Assumptions, Not Empirical Evidence, And Are Disproved By The Data. 9

D. The Teaching-Suggestion-Motivation Standard Has Brought Stability and Predictability To The Law Of Obviousness. 11

E. The Court Should Reject The Alternative Standards Proposed By Petitioner And The United States. 12

Table of Contents—continued

Page

F. The Longevity And Consistent Application Of The Teaching-Suggestion-Motivation Standard Has Resulted In Substantial And Reasonable Reliance. 16

II. ABANDONMENT OF THE TEACHING-SUGGESTION-MOTIVATION TEST WOULD UNDERMINE INNOVATION IN THE U.S. ECONOMY AND HARM INNOVATIVE COMPANIES LIKE *AMICI*. 21

CONCLUSION 29

TABLE OF AUTHORITIES

CASES Page

ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572 (Fed. Cir. 1984) 5-6

Advanced Tech. Materials, Inc. v. Praxair, Inc., No. 03 CV 5161(RO), 2006 WL 1006341 (S.D.N.Y. Apr. 18, 2006) 11

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Page

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Page

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Page

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Page

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INTEREST OF *AMICI CURIAE*[1]

Tessera, Inc. ("Tessera"), is a leading provider of miniaturization technologies enabling the semiconductor industry to build smaller, faster, and more reliable electronic products. Tessera presently has over 360 issued United States patents and over 60 licensees in the area of computer chip packaging technology, including the world's top semiconductor companies such as Intel, Samsung, Renesas, Toshiba and Texas Instruments, as well as a number of universities. More than eight billion semiconductors worldwide incorporate Tessera's technology. Tessera's technologies are widely adopted in high-growth markets, including consumer, computing, communications, medical, and defense electronics. Tessera's ability to continue to innovate depends upon its ability to license its technology and enforce its patents.

QUALCOMM Inc. ("Qualcomm") is a leading developer and innovator of Code Division Multiple Access ("CDMA") and other advanced wireless technologies. Qualcomm presently has more than 4,000 United States patents and patent applications. Qualcomm designs, manufactures, has manufactured on its behalf, and markets digital wireless telecommunications products and services based on its CDMA and other technologies. Qualcomm's technology and semiconductor products are widely used in the manufacture of cellular telephones and other wireless devices. Qualcomm has licensed its technology to more than 125 leading telecommunications and consumer electronics equipment manufacturers around the world. Qualcomm derives revenue

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[1] Pursuant to Supreme Court Rule 37.6, *amici curiae* state that counsel for *amici* authored this brief in its entirety. No person or entity other than *amici* and their counsel made a monetary contribution to the preparation of this brief. The parties have filed blanket letters of consent with the Clerk of the Court.

principally from sales of integrated circuit products, license fees and royalties for use of its intellectual property, services and related hardware sales, and software development and licensing.

AmberWave Systems Corporation ("AmberWave") is a leading developer of strained silicon technology and other advanced semiconductor materials and devices. The company's strained silicon technology is a result of more than fifteen years of research at MIT, AT&T Bell Labs, and its own research facility. AmberWave continues to develop the next generation of semiconductor material and device technologies by partnering its research capabilities with world-class institutions. AmberWave has assembled a portfolio of over 150 issued and pending patents, has raised over $90 million in venture capital funding, and licenses its technology to semiconductor equipment, wafer, and chip manufacturers. AmberWave complements its intellectual property licenses with a range of manufacturing and technical support services enabling its licensees to integrate the licensed technology into advanced manufacturing processes.

Each of the *amici* invests millions of dollars annually in research and development in their respective fields. Each also actively licenses the fruits of its development to other advanced technology companies. This business model brings a level of specialization and efficiency to the nation's high-technology industries and depends, in significant part, on the maintenance of strong patent laws. The teaching-suggestion-motivation test, which has a long pedigree in patent law and a history of consistent application by the Federal Circuit, is essential to the proper application of section 103 of the Patent Act. The alternative standards for non-obviousness advocated by petitioner and the United States would, if adopted, discourage innovation and investment in research and development in high-technology industries, harm the viability of research-and-development-driven business models such as those of *amici*, and thereby undermine the ability of the

United States to maintain technological leadership in the 21st century. Since the United States' economy rests on our technological strength, the radical departure in the law of non-obviousness sought by petitioner and the United States is not in the public interest.

SUMMARY OF THE ARGUMENT

This Court should reject the attempt by petitioner and its *amici* to overturn the United States Court of Appeals for the Federal Circuit's "teaching-suggestion-motivation" standard. That standard properly implements the non-obviousness requirement of 35 U.S.C. § 103(a) as interpreted by this Court's decision in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). It has been consistently applied by the Federal Circuit and its predecessor for more than sixty years. It is a barrier to the ever-present risk of reliance on hindsight in determining obviousness. Because the teaching-suggestion-motivation standard requires objective evidence of obviousness, it also provides an essential measure of stability and predictability to inventors, the innovative companies that employ them, and the investors that make research possible. And its consistent application by the Federal Circuit, and this Court's regular practice over the course of twenty-five years declining to review any of those decisions, has induced substantial and reasonable reliance.

The criticisms of the teaching-suggestion-motivation standard offered by petitioner and its *amici* are without merit. The empirical evidence establishes that the teaching-suggestion-motivation standard has not lowered the standard for patentability, nor has it made summary judgment on obviousness difficult or impossible to obtain. On the other hand, petitioner and the United States propose alternative standards that are inconsistent with the Patent Act and that are wholly subjective and would thus destroy the predictability required for adequate investment in innovation.

Finally, abandoning the teaching-suggestion-motivation standard would strike a significant blow to the innovation required for the United States to maintain a vibrant, growing economy in the 21st century. While innovation traditionally has been the domain of large, vertically integrated companies, today it is increasingly occurring at specialized technology companies—such as *amici* Tessera, Qualcomm, and AmberWave—that are focused on developing new technologies through research and then licensing those technologies to other businesses. Such companies are dependent on the availability of financing from venture capital and the public markets. A strong, predictable, and reliable patent system is a necessary prerequisite for the technological and economic success of such companies because management and investors must rely on patents to protect the economic viability of their inventions. The weakening of the patent system—whether by making patentability more unpredictable or more difficult to achieve—would severely undermine this innovative component of the nation's research and development community, and it thereby would retard, not promote, "the progress of science." U.S. CONST. art. I, § 8, cl. 8.

ARGUMENT

I. THE FEDERAL CIRCUIT'S TEACHING-SUGGESTION-MOTIVATION STANDARD IS CONSISTENT WITH BOTH THE PATENT ACT AND SUPREME COURT PRECEDENT.

A. The Teaching-Suggestion-Motivation Standard Has Long Been Applied By The Federal Circuit And Its Predecessor.

Petitioner claims that, in adopting the teaching-suggestion-motivation test, the Federal Circuit adopted a "radical reinterpretation of § 103(a)." Pet. Br. 28. This assertion simply is untrue. In fact, the teaching-suggestion-motivation standard has a pedigree dating back more than sixty years.

During the 1940s, the Court of Customs and Patent Appeals ("CCPA"), the predecessor of the Federal Circuit, regularly applied a variation of that standard to determine whether references were properly combined. *See, e.g., In re Fridolph*, 134 F.2d 414, 416 (C.C.P.A. 1943) ("[I]n considering more than one reference, or a reference alleged not to be in the art involved, the question always is: does such art suggest doing the thing which the appellant has done? We think the art of record clearly suggests doing what appellant has done."). Within the CCPA, the suggestion test eventually became the settled, objective tool for determining when a rejection of an invention based on combination of known elements was appropriate. *See, e.g., In re Shaffer*, 229 F.2d 476, 479 (C.C.P.A. 1956) ("to determine whether the combination of references is proper, the following criterion is often used: namely, whether the prior art suggests doing what the applicant has done").

In 1982, the Federal Circuit inherited the exclusive jurisdiction of the CCPA to review Patent Office decisions, and it adopted the CCPA's decisions as its own binding precedent. *See In re Sernaker*, 702 F.2d 989, 994 (Fed. Cir. 1983). The Federal Circuit continued to apply and refine the teaching-suggestion-motivation standard. In *Sernaker*, one of the earliest Federal Circuit decisions addressing obviousness based on prior art combination, the court inquired "whether a combination of the teachings of all or any of the references would have suggested (expressly or by implication) the possibility of achieving further improvement by combining such teachings along the line of the invention in suit . . . ." *Id.* at 994. One year later, the Federal Circuit noted that "obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under § 103, teachings of references can be combined *only* if there is some suggestion or incentive to do so." *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d

1572, 1577 (Fed. Cir. 1984) (footnote omitted) (emphasis in the original). The teaching-suggestion-motivation test, as it has now become known, consistently has been applied by the Federal Circuit since *Sernaker* and *ACS Hospital*.

B. The Teaching-Suggestion-Motivation Standard Is Consistent With This Court's Decisions.

Both petitioner and the United States argue that the teaching-suggestion-motivation test flouts this Court's precedent, particularly *Graham*. Pet. Br. 20-27; U.S. Br. 10. This argument is unfounded. As one study recently concluded: "Over the years the Federal Circuit has paid great homage to the decision in *Graham*. Not only has it consistently relied on the Supreme Court's factor-based approach to determining the question of obviousness, it has also accepted the Supreme Court's invitation for appellate court involvement." Lee Petherbridge & R. Polk Wagner, *The Federal Circuit and Patentability: An Empirical Assessment of the Law of Obviousness* 13 (Loyola-LA Legal Studies, Research Paper No. 2006-21, Aug. 18, 2006) (hereinafter "Petherbridge & Wagner") (available at http://papers.ssrn.com/abstract_id=923309).

The Federal Circuit has employed the teaching-suggestion-motivation test to "inform[] the *Graham* analysis" and to "prevent[] statutorily proscribed hindsight reasoning when determining the obviousness of an invention." *Alza Corp. v. Mylan Labs., Inc.*, No. 06-1019, 2006 WL 2556356, at *3 (Fed. Cir. Sept. 6, 2006). As the Federal Circuit has explained:

> To reach a non-hindsight driven conclusion as to whether a person having ordinary skill in the art at the time of the invention would have viewed the subject matter as a whole to have been obvious in view of multiple references, the Board must provide some rationale, articulation, or reasoned basis to explain why the conclusion of obviousness is correct.

In re Khan, 441 F.3d 977, 987 (Fed. Cir. 2006). In short, under the teaching-suggestion-motivation standard, a court cannot simply presume that a person of ordinary skill would have combined the references, nor can it rely on mere expert testimony not itself supported by objective evidence. *See Rhone Poulenc Agro, S.A. v. DeKalb Genetics Corp.*, 272 F.3d 1335, 1358 (Fed. Cir. 2001), *vacated on other grounds*, 538 U.S. 974 (2003). To guard against hindsight reconstruction, the Federal Circuit merely requires that the lower courts make findings and supply their reasoning for why there is a teaching, suggestion, or motivation to combine sources of prior art, whether it be implicit (in cases of well-known principles) or explicit (when there is a clear statement in the reference).[2] This requirement is consistent with the language of 35 U.S.C. § 103(a) ("if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious . . . to a person of ordinary skill") and with *Graham*'s four-factor non-obviousness inquiry ("the scope and content of the prior art" must be determined, 383 U.S. at 17).[3]

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[2] For example, the Federal Circuit in remanding this case stated that "[u]nder our case law, whether based on the nature of the problem to be solved, the express teachings of the prior art, or the knowledge of one of ordinary skill in the art, the district court was required to make specific findings as to whether there was a suggestion or motivation to combine . . . ." *Teleflex, Inc. v. KSR Int'l Co.*, 119 F. App'x 282, 288 (Fed. Cir. 2005) (unpublished).

[3] Petitioner suggests that the teaching-suggestion-motivation standard permits patents based on "trivial" patents that represent insignificant changes to the prior art. Pet. Br. 46. Petitioner, however, misreads the Federal Circuit's precedent. In situations involving matters of common knowledge, there is no need for there to be an explicit suggestion in the prior art to make the combination. According to the Federal Circuit, in these situations involving challenges to non-obviousness based on elements and principles that were well-known in the prior art, "[n]o explicit suggestion to combine the prior art references would have been

Petitioner argues that the Federal Circuit deviated from this Court's precedent because the Court "never held that a proven 'teaching, suggestion, or motivation to combine prior art teachings in the particular manner claimed in a patent,' is a *prerequisite* to declaring claimed subject matter unpatentable." Pet. Br. 19 (emphasis in original). But the fact that the Federal Circuit has further developed and elaborated on the *Graham* approach does not represent lack of fealty to that holding. Indeed, it is the business of the courts of appeals to develop and elaborate on this Court's decisions.

Petitioner relies most heavily on *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969), and *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273 (1976). Those decisions are consistent with the teaching-suggestion-motivation standard. That standard required no detailed discussion in either case because the obviousness inquiry was straightforward. In *Anderson's-Black Rock*, persons of ordinary skill would have been motivated by an interest in improving efficiency in an already-known process. *See Dystar*, 2006 WL 2806466, at *12. In *Sakraida*, the Court noted that "[e]xploitation of the principle of gravity adds nothing to the sum of useful knowledge . . . ." 425 U.S. at 282. Thus, in *Sakraida* there was no need for this Court to inquire into the existence of evidence of a motivation to combine prior art references with a universally known law of nature.

Petitioner also relies on *Dann v. Johnston*, 425 U.S. 219 (1976), in which the Court held that the claimed subject matter was unpatentable, even though the CCPA stated that the prior art reference was "not suggestive of the subject matter of the appealed [patent] claims." *In re Johnston*, 502 F.2d 765, 772 (C.C.P.A. 1974). In *Dann*, however, the Court

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necessary." *See Dystar Textilfarben GmbH v. C.H. Patrick Co.*, No. 06-1088, 2006 WL 2806466, at *24 (Fed. Cir. Oct. 3, 2006).

gave considerable weight to the "extensive" "use of data processing equipment and computer programs in the banking industry." 425 U.S. at 227. According to the Court, the combination of this known technology, the similarity of the systems and fields in which they are used, and the prior art patent disclosing automated data processing was enough to render the claimed invention obvious. *Id.* at 229. Thus, the Court's recognition of an *implicit* suggestion in the prior art is consistent with Federal Circuit precedent. *See Dystar*, 2006 WL 2806466, at *17 ("When not from the prior art references, the 'evidence' of motive will likely consist of an *explanation* of the well-known principle or problem-solving strategy to be applied.").

C. The Criticisms Of The Teaching-Suggestion-Motivation Test Offered By Petitioner And The United States Are Based On Assumptions, Not Empirical Evidence, And Are Disproved By The Data.

Underlying the criticisms of the teaching-suggestion-motivation test by petitioner and the United States are assumptions lacking empirical support. They assert that by adopting the teaching-suggestion-motivation test, the Federal Circuit has improperly relaxed the non-obviousness requirement imposed in 35 U.S.C § 103(a) and applied in *Graham*. Pet. Br. 6, 16, 33; U.S. Br. 23. They also assert that the teaching-suggestion-motivation standard makes it difficult for parties—presumably defendants—to obtain summary judgment. Pet. Br. 34; U.S. Br. 20.

Notably absent from their briefs or the sources on which they rely, however, is any *evidence* supporting such claims. To the contrary, recent research refutes these assertions.

First, the evidence contradicts the assertion that the Federal Circuit has weakened the non-obviousness requirement. According to one recent study, "the Federal Circuit reaches an obvious outcome nearly sixty-percent of the time it addresses

the issue . . . ." Petherbridge & Wagner, *supra*, at 42. Moreover, directly contrary to petitioner's and the United States' claims, "[a]s the [teaching-suggestion-motivation] analysis has become more prominent in Federal Circuit opinions, the rate at which the Federal Circuit reached a nonobvious outcome *decreased*." *Id.* at 52 (emphasis added). The authors of the study conclude that the teaching-suggestion-motivation standard "might be bringing a clarity to the law of obviousness that is helping rather than hindering the demonstration of obviousness." *Id.* at 49.

Another study "did not show a significant difference between the Federal Circuit's handling of a lower court's finding of nonobvious as compared to a finding of obvious." Christopher A. Cotropia, *Nonobviousness and the Federal Circuit: An Empirical Analysis of Recent Case Law* 23, NOTRE DAME L. REV. (forthcoming) (available at http://papers.ssrn.com/abstract_id=933192). A different study found that "[m]ock jurors who received a jury instruction to apply the suggestion requirement were no more likely to conclude that an invention was non-obvious than mock jurors who received no suggestion instruction." Gregory Mandel, *Patently Non-Obvious II: Experimental Study on the Hindsight Issue Before the Supreme Court in KSR v. Teleflex* 2 (Aug. 15, 2006) (available at http://papers.ssrn.com/abstract_id=928662).

Second, the assertion that the teaching-suggestion-motivation standard prevents the granting of summary judgment also is disproved by the evidence. Despite petitioner's claim that the teaching-suggestion-motivation standard "renders summary judgment all but unattainable on § 103 issues" (Pet. Br. 33), a quick search reveals numerous recent district court decisions granting summary judgment on

grounds of obviousness.[4] Summary judgment on obviousness, therefore, is far from "unattainable." Moreover, over the four-year period from 2002 through 2005, the Federal Circuit heard 41 appeals of summary judgments involving obviousness, and affirmed almost 40% of them. *See* Cotropia, *supra*, at 38. One study analyzed all Federal Circuit summary judgment appeals involving the issue of obviousness over that period and concluded that the teaching-suggestion-motivation standard was a "barrier to summary judgment" in fewer than 20% of those appeals, and thus "play[ed] a very small role in preventing summary judgment." *Id.* at 42.

In short, the empirical evidence refutes the factual underpinnings of the challenge to the teaching-suggestion-motivation standard offered by petitioner and the United States. Theirs is a solution in search of a problem.

D. The Teaching-Suggestion-Motivation Standard Has Brought Stability and Predictability To The Law Of Obviousness.

The Federal Circuit's teaching-suggestion-motivation standard has succeeded in bringing needed clarity and

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[4] *See, e.g., Auto. Techs. Int'l, Inc. v. TRW Vehicle Safety Sys., Inc.*, No. 02-73572, 2006 WL 2794338, at *7 (E.D. Mich. Sept. 27, 2006); *Advanced Tech. Materials, Inc. v. Praxair, Inc.*, No. 03 CV 5161(RO), 2006 WL 1006341, at *8 (S.D.N.Y. Apr. 18, 2006); *Powdermagic, Ltd. v. Rossignol Ski Co.*, No. 1:04CV00133, 2005 WL 3981617, at *6 (D. Utah Aug. 4, 2005); *IXYS Corp. v. Advanced Power Tech., Inc.*, 321 F. Supp. 2d 1133, 1156 (N.D. Cal. 2004); *Upsher-Smith Labs., Inc. v. Pan Am. Labs., Inc.*, No. Civ. 01-352ADMAJB, 2003 WL 22999551, at *7 (D. Minn. Dec. 19, 2003), *aff'd*, 412 F.3d 1319 (Fed. Cir. 2005); *Robinson Labs, Inc. v. Walls Indus., Inc.*, No. Civ. 01-1604 JNEJGL, 2003 WL 22272122, at *7 (D. Minn. Sept. 30, 2003); *For Your Ease Only, Inc. v. Natural Sci. Indus., Ltd.*, No. 02 C 1584, 2003 WL 22112997, at *9 (N.D. Ill. Sept. 10, 2003), *aff'd*, 101 F. App'x 356 (Fed. Cir. 2004) (unpublished).

predictability to the law of obviousness. The non-obviousness doctrine as applied by the Federal Circuit is "fairly stable and predictable," *see* Petherbridge & Wagner, *supra*, at 31, and has not engendered confusion among the district courts or caused practical problems in application. For example, one study found that, from 1990 to 2005, the Federal Circuit affirmed judgments rendered on obviousness grounds 65.0% of the time while reversing only 22.9%. *Id.* This reversal rate is significantly *lower* than the reported reversal rate by the Federal Circuit of lower court decisions on claim construction issues, which studies suggest ranges from 33% to 50%. *See id.* at 33. This reversal rate also compares favorably to the likelihood that the Federal Circuit will reverse written opinions across all issues in patent cases, which is 47.3%. *See id.* at 32.

The stability and predictability of the non-obviousness jurisprudence since the inception of the Federal Court stands in marked contrast to the jurisprudence before that court was created. "In the legislative history leading up to the court's creation, the most often-cited example of instability and regional variation was the obviousness doctrine." Sean M. McEldowney, *New Insights on the "Death" of Obviousness: An Empirical Study of District Court Obviousness Opinions*, 2006 STAN. TECH. L. REV. 4, ¶ 10. This "instability and regional variation" existed *despite* this Court's active docket of obviousness cases. This Court should hesitate before overturning this well-settled doctrine that has achieved stability and predictability.

E. The Court Should Reject The Alternative Standards Proposed By Petitioner And The United States.

The subjective alternatives to the teaching-suggestion-motivation standard proposed by petitioner and the United States should be rejected. They are little more than invitations to return to the days of vague and ambiguous obviousness standards that provided little guidance and still

less predictability to inventors, investors, and the lower courts.[5]

Although petitioner devotes the vast bulk of its brief to criticizing the teaching-suggestion-motivation standard, it spends precious little time articulating (let alone defending) the alternative standard it asks this Court to adopt. To the extent that an intelligible principle can be gleaned from the brief, petitioner appears to suggest that a combination of pre-existing elements is obvious where it "perform[s] or produce[s] no new or different function or operation."[6] Pet. Br. 23; *see also id.* at 43.

Petitioner's standard is inadequate for several reasons.[7] First, it impermissibly reverses the statutory presumption of validity applicable to all patents. *See* 35 U.S.C. § 282 ("A patent shall be presumed valid."); *see also Kahn v. Gen.*

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[5] Prior to introduction of the *Graham* standard, early decisions developed a number of so-called "negative rules of invention" that were simply statements that certain alterations of known elements did not constitute an invention. The so-called "synergistic result" or "new or different function" are examples of these negative rules. *See* 2 Donald S. Chisum, *Chisum on Patents* § 5.04[5][b] (2006). Commentators have suggested that the enactment of 35 U.S.C. § 103(a) and the *Graham* decision substituted a more objective analysis for these negative rules. *See id.* Injecting negative rules into non-obviousness analysis of combination claims is unnecessary and would generate confusion and unpredictability.

[6] Notably absent from petitioner's explanation of its proposed standard is reference to the four *Graham* factors. Most of the Supreme Court precedent relied on by petitioner (Pet Br. 22 n.17), to which they request that the Supreme Court adhere, was decided before the 1952 Patent Act and *Graham*.

[7] In addition to discussing the proper standard for determining obviousness, both petitioner and the United States argue that the patent at issue in this case is invalid under § 103(a). Pet. Br. 43; U.S. Br. 27-30. *Amici* take no position as to the obviousness *vel non* of the patent under the teaching-suggestion-motivation standard.

Motors Corp., 135 F.3d 1472, 1480 (Fed. Cir. 1998) ("An issued patent is presumed to be valid and, hence, nonobvious."). While a presumption is "just" a presumption (Pet. Br. 41 n.34) and a court certainly can disagree with the Patent and Trademark Office based on appropriate considerations, the Court cannot exempt wholesale a category of patents from the presumption established by Congress.

Second, petitioner's denigration of inventions that consist of combinations of existing elements is non-sensical. Thomas Jefferson noted almost two centuries ago that "one new idea leads to another, that to a thi d, and so on through a course of time until some one, with whom no one of these ideas was original, combines all together, and produces what is justly called a new invention." 12 THE WORKS OF THOMAS JEFFERSON 88 (Paul Leicester Ford, ed., 1905). Learned Hand observed more recently that *every* invention may be characterized as a combination of old elements: "the defendant argues that the supposed invention is no more than a substitution of materials familiar to the art in the same uses; an aggregation of which each part performs what it did before. We may conclude as much, arguendo, for the same may be said of every invention." *B.G. Corp. v. Walker Kidde & Co.*, 79 F.2d 20, 21-22 (2d Cir. 1935).

Third, the "new or different function" standard imposes absolutely no objective criteria to be applied to the obviousness inquiry. As a result, that standard is an invitation for the fact-finder to rely, consciously or not, on hindsight. The lack of predictability resulting from this standard would, in many cases, render investment in research and development impractical as businesses and their investors would be left wholly at sea in evaluating whether contemplated research would result in a patentable invention. Thus, research and development may be practical only for vertically integrated manufacturing companies, since they rely less on patents and more on manufacturing capacity and trade secrets to protect their technology. As a result, potential

technological advances may be hidden away from the public as trade secrets or—as these vertically integrated manufacturing companies reduce their research and development funding—not pursued altogether. Moreover, the "new or different function" standard would leave the lay fact-finder at the mercy of deciding between each side's bought-and-paid-for experts, who—not bound to rely solely on objective evidence—would in each and every case arrive at diametrically opposed views as to whether a combination was "new and different." Finally, that standard would undermine, if not destroy, the availability of summary judgment, as courts rarely can decide between competing experts as a matter of law when both opinions are admissible. *See, e.g. Sprint Airlines, Inc. v. Northwest Airlines, Inc.*, 431 F.3d 917, 945 (6th Cir. 2005); *Sipp v. Unumprovident Corp.*, 107 F. App'x 867, 873 (10th Cir. 2004); *Greason v. Kemp*, 891 F.2d 829, 835 (11th Cir. 1990).

In its brief, the United States proposes that the Court abandon the teaching-suggestion-motivation test and apply what it claims is the four-factor non-obviousness analysis articulated in *Graham*. According to the United States, under this standard an invention is patentable only if it "manifests" an "extraordinary level of innovation." U.S. Br. 10. Its brief is devoid of any support for this novel standard, from *Graham* or elsewhere. The United States also suggests that combinations of previously known elements would be non-obvious only when they serve a "new or different function" (as petitioner advocates) or when they present a "synergistic result." U.S. Br. 28. But the "synergistic result" standard suffers the same flaws of vagueness and indeterminacy as the "new or different function" test. Indeed, in a moment of candor the United States admits as much, urging the Court to substitute the Federal Circuit's predictable and objective standard with one relying on a district court's "discerning judgment" in undertaking what it sees as a "highly variable inquiry." U.S. Br. 17.

Moreover, upon close inspection, the United States' position appears inconsistent with 35 U.S.C. § 103(a) and this Court's analysis in *Graham*. For instance, the government argues that:

> The Court should reiterate that the role of the hypothetical person of ordinary skill is critical in the nonobviousness inquiry and that the person is understood to have "an ability to combine and modify prior art references that is consistent with the creativity and problem-solving skills that in fact are characteristic of those having ordinary skill in the art."

U.S. Br. 25 (quoting FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY ch. 4, at 15 (2003)). This analysis improperly incorporates a presumption into the statute that does not exist. While it may be "understood" that one of ordinary skill has the "*ability* to combine and modify prior art references," it cannot be presumed that one *would* do so. There must be some evidentiary support in the prior art itself that would motivate one of ordinary skill in the art to make the combination. According to 35 U.S.C. § 103(a), a non-obviousness inquiry requires a careful examination of the prior art to ascertain why "the subject matter as a whole" would have been obvious to one of ordinary skill. This determination should include factual findings and an explanation regarding why one of ordinary skill would have been motivated to combine prior art references in view of their disclosures.

F. The Longevity And Consistent Application Of The Teaching-Suggestion-Motivation Standard Has Resulted In Substantial And Reasonable Reliance.

The patent laws grant temporary monopoly rights to patent holders as a reward for innovation and to encourage the public to invest in ideas that strengthen industry, drive

technological progress, and sustain the overall economy. Consequently, it is crucial for patent-holders and investors to have a clear understanding as to the scope of patent protection. It is therefore essential that all patents be given clear and consistent treatment by the courts. As the Court explained in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722 (2002):

> The monopoly [granted to the patent holder] is a property right; and like any property right, its boundaries should be clear. This clarity is essential to promote progress, because it enables efficient investment in innovation. A patent holder should know what he owns, and the public should know what he does not.

Id. at 730-31. This is particularly true with the non-obviousness requirement. In adopting § 103, Congress sought to achieve "'uniformity and definiteness,'" which would "'have a stabilizing effect and minimize great departures which have appeared in some cases.'" *Graham*, 383 U.S. at 15 (quoting H.R. REP. NO. 82-1923, at 7 (1952)).

Before the Court of Appeals for the Federal Circuit was established, there existed a glaring absence of uniformity and consistency in the adjudication of patent law. The decisions of the various courts of appeals were often conflicting, even as to substantially similar patents, leading patent holders to experience prolonged uncertainty and insecurity with regard to the scope of protection. *See* Commission on Revision of the Fed. Court Appellate Sys., *Recommendations for Change*, 67 F.R.D. 195, 361 (1975) ("Hruska Report").

In 1972, Congress established the Commission on Revision of the Federal Court Appellate System ("Hruska Commission") to study the structure and internal procedures of the federal courts of appeals and recommend changes to Congress. One of the Hruska Commission's findings was that there was a clear need in the area of patent law "for a new

court which could not only deal with the actual conflicts which develop between circuits and within circuits but more importantly . . . could provide a monitoring function to eliminate or at least minimize the attitudinal aberrations with which we are too often now confronted." Hruska Report, *supra*, at 361 (internal quotation marks omitted).

In 1981, Congress established the Federal Circuit. One stated purpose in doing so was "to fill a void in the judicial system by creating an appellate forum capable of exercising nationwide jurisdiction over appeals in areas of the law where Congress determines there is a special need for nationwide uniformity." S. REP. NO. 97-275, at 2 (1981), *reprinted in* 1982 U.S.C.C.A.N. 11, 12. Ultimately, in the patent law context, the goal was to increase doctrinal stability and predictability in order to make planning easier for businesses and industries that rely on the system, to strengthen the national economy, and to advance technological innovation. *See* H.R. REP. NO. 97-312 at 20-23 (1981); S. REP. NO. 97-275, at 6 ("Uniformity in the law will be a significant improvement from the standpoint of the businesses that rely on the patent system. Business planning becomes easier as more stable and predictable patent law is introduced. This can have important positive ramifications upon our economy as a whole."). Congress found that "stability in the patent law [context] has an effect on technological innovation":

> Patents . . . are a stimulus to the innovative process, which includes not only investment in research and development but also a far greater investment in facilities for producing and distributing the goods. Certainly, it is important to those who must make these investment decisions that we decrease unnecessary uncertainties in the patent system.

S. REP. NO. 97-275, at 6 (quoting *Hearings on the Fed. Courts Improvement Act of 1979 Before the Senate Judiciary Subcomm. on Improvements in Judicial Machinery*, 96th

Cong. 67-68 (1979) (statement of Harry F. Manbeck, May 7, 1979)).

Since the Federal Circuit was formed, this Court repeatedly has recognized the importance of the uniformity, certainty, and consistency that the Federal Circuit has brought to the area of patent law. It is for this reason that the Court has determined that the Federal Circuit should exercise *de novo* review in claim construction cases.

> "[T]he limits of a patent must be known for the protection of the patentee, the encouragement of the inventive genius of others and the assurance that the subject of the patent will be dedicated ultimately to the public." Otherwise, a "zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims would discourage invention only a little less than unequivocal foreclosure of the field," and "[t]he public [would] be deprived of rights supposed to belong to it, without being clearly told what it is that limits these rights."

Markman v. Westview Instruments, Inc., 517 U.S. 370, 390 (1996) (citations omitted) (brackets in the original).

This concern for those who have acted in reliance on the judiciary's construction of the patent laws has compelled this Court to hesitate to change course in other contexts. For instance, this Court declined to find the doctrine of equivalents in conflict with the Patent Act because of its "lengthy history." *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 28 (1997). Similarly, the Court declined to alter the doctrine of prosecution history estoppel, explaining that "[t]o change so substantially the rules of the game now could very well subvert the various balances the PTO sought to strike when issuing the numerous patents which have not yet expired and which would be affected by our decision." *Id.* at 32 n.6.

In the unique context of the Federal Circuit, where Congress created a specialized court to develop subject matter expertise and to ensure consistency in a particularly complex area of law, the principles underlying the doctrine of *stare decisis* should apply analogously to this Court's review of the Federal Circuit's teaching-suggestion-motivation standard. Respecting the Federal Circuit's precedent in this circumstance would "promote[] the evenhanded, predictable, and consistent development of legal principles, foster[] reliance on judicial decisions, and contribute[] to the actual and perceived integrity of the judicial process." *United States v. Int'l Bus. Machs. Corp.*, 517 U.S. 843, 856 (1996) (quoting *Payne v. Tennessee*, 501 U.S. 808, 827 (1991)). It would bring fairness and stability to case law through the affirmation of settled legal expectations. *Randall v. Sorrell*, 126 S. Ct. 2479, 2489 (2006). This Court, moreover, consistently has been reticent to disrupt settled expectations. *See id.* at 2490; *Allied Signal, Inc. v. Dir., Div. of Taxation*, 504 U.S. 768, 783 (1992); *Quill Corp. v. North Dakota*, 504 U.S. 298, 311 (1992).

The teaching-suggestion-motivation standard has been applied since the 1940s. *See supra*, at 4-6. Despite many opportunities over the past twenty-five years, this Court has declined to review *any* of the Federal Circuit's obviousness decisions.[8] Patent holders, investors, and businesses all have relied on that standard. And, in the process, the nation's high

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[8] *See, e.g., Ecolochem, Inc. v. So. Cal. Edison Co.*, 227 F.3d 1361 (Fed. Cir. 2000), *cert. denied*, 532 U.S. 974 (2001); *Langston v. Sw. Bell Tel. Co.*, 945 F.2d 416 (Fed. Cir. 1991) (unpublished), *cert. denied*, 503 U.S. 914 (1992); *Modine Mfg. Co. v. Alien Group, Inc.*, 917 F.2d 538 (Fed. Cir. 1990), *cert. denied*, 500 U.S. 918 (1991); *Polaroid Corp. v. Eastman Kodak Co.*, 789 F.2d 1556 (Fed. Cir.), *cert. denied*, 479 U.S. 850 (1986); *Medtronic, Inc. v. Daig Corp.*, 789 F.2d 903 (Fed. Cir.), *cert. denied*, 479 U.S. 931 (1986); *Nickson Indus., Inc. v. Rol Mfg. Co.*, 765 F.2d 160 (Fed. Cir.) (table disposition), *cert. denied*, 474 U.S. 843 (1985).

technology economy has flourished. To depart from that standard now would undermine expectations and undercut the fairness and stability that its consistent application has brought to the patent laws. The development of stable, predictable law, the encouragement of reliance on judicial decisions, and the contribution to the perceived integrity of the judicial process all require that the Court not disturb the settled teaching-suggesting-motivation test.

II. ABANDONMENT OF THE TEACHING-SUGGESTION-MOTIVATION TEST WOULD UNDERMINE INNOVATION IN THE U.S. ECONOMY AND HARM INNOVATIVE COMPANIES LIKE *AMICI*.

The Constitution establishes that the goal of the patent system is "[t]o promote the progress of science." U.S. CONST. art. I, § 8, cl. 8. The patent system accomplishes this goal by granting inventors a limited period in which they may exclude others from practicing their invention, but the grant is conditioned on the inventors fully disclosing their inventions to the public. *See Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150-51 (1989) (describing the "federal patent system" as embodying "a carefully crafted bargain"). The patent system thereby "promote[s] the progress of science" via two different, but related, mechanisms. First, inventors are given an incentive to invent via the promise of exclusivity. Second, the accretional nature of scientific progress is furthered via the public disclosure of the inventor's application. *See Aronson v. Quick Point Pencil Co.*, 440 U.S. 257, 262 (1979) (stating that the "purposes of the federal patent system" are that it "seeks to foster and reward invention" and that "it promotes disclosure of inventions, to stimulate further innovation and to permit the public to practice the invention once the patent expires").

The ultimate goal of the system is that it "will have a positive effect on society through the introduction of new products and processes of manufacture into the economy, and

the emanations by way of increased employment and better lives for our citizens." *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 480 (1974). Put more simply, the purpose of the patent system is to stimulate innovation. *See* Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1597 (2003) ("To a greater extent than any other area of intellectual property, courts and commentators widely agree that the basic purpose of patent law is utilitarian: We grant patents in order to encourage invention."); Andrew Beckerman-Rodau, *Patent Law—Balancing Profit Maximization and Public Access to Technology*, 4 COLUM. SCI. & TECH. L. REV. 1, 14 (2002) ("The most obvious benefit of patent law is that it promotes investment in research and development to create innovative products.").

Innovation has always been an important aspect of the United States economy, and in today's modern and rapidly evolving economy it is more important than ever. The archetypal modern corporation through much of the 20th century was a large, vertically integrated enterprise with an "extensive managerial hierarchy."[9] Large, vertically integrated corporations, however, often find it difficult to innovate.[10]

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[9] Timothy J. Sturgeon, *Modular Production Networks: A New American Model of Industrial Organization*, 11 INDUS. & CORP. CHANGE 451, 451 (2002); *see also* Richard N. Langlois, *The Vanishing Hand: The Changing Dynamics of Industrial Capitalism*, 12 INDUS. & CORP. CHANGE 351, 352 (2003) (describing this model of corporate structure as "multi-unit firms in which managerial control spans a large number of vertical stages").

[10] *See* Gary Hamel, *Bringing Silicon Valley Inside*, HARV. BUS. REV., Sept.-Oct. 1999, at 71, 76-78; Daron Acemoglu, *et al.*, *Vertical Integration and Distance to Frontier*, 1 J. EUR. ECON. ASS'N 630, 630 (2003) ("In vertically integrated firms, owners (managers) have to spend time both on production and innovation activities, and this creates managerial overload, and discourages innovation."); STAFF OF JOINT ECONOMIC COMM., ENTREPRENEURS CREATING THE NEW ECONOMY 15,

Recent decades have witnessed the rise of smaller, specialized companies with business models focused more on developing and pursuing specific core areas of competence while outsourcing non-core areas like manufacturing.[11] Such small, specialized companies offer numerous advantages over the traditional vertically integrated firms. They more easily adapt to increasing competition and market volatility. They attract venture capital funding to support a wider variety of higher risk/higher return undertakings. They are more innovative than their larger, vertically integrated counterparts. They bring tremendous benefits to the national economy. And, importantly, they rely disproportionately on a strong, predictable intellectual property system.

Recent research has confirmed the importance of such smaller, specialized companies. A 2003 study comprehensively evaluated over 1,000 U.S. companies that owned at least 15 patents. *See* CHI Research, Inc., *Small Serial Innovators: The Small Firm Contribution to Technical*

19-20 (2000) (prepared by Chris Edwards) (hereinafter "ENTREPRENEURS") (available at http://www.cato.org/research/articles/edwards11-00.pdf).

[11] *See* Council on Competitiveness, *Innovate America: National Innovation Initiative Final Report 18* (2004) (hereinafter "*Innovate America*") ("In this increasingly fluid environment, no one company can hope to achieve and maintain control of an industry or market through vertical integration. Even the largest businesses, governments and academic institutions are more and more interdependent with a large number of smaller enterprises.") (available at http://www.publicforuminstitute.org/nde/sources/NII_Final_Report.pdf); Sturgeon, *supra*, at 456 (noting that in the "product-level electronics manufacturing" market, "the organizational shift, from in-house to outsourced manufacturing, has been dramatic in recent years" and that "comparable changes are underway in many other sectors . . . such as apparel and footwear, toys, data processing, offshore oil drilling, home furnishings and lighting, semiconductor fabrication, food processing, automotive parts, brewing, enterprise networking, and pharmaceutical production").

Change 3 (2003) (hereinafter "*Small Serial Innovators*") (available at http://www.sba.gov/advo/research/rs225tot.pdf). The study concluded that:

- "one-third of America's most prolific patenting companies are small firms."[12] *Id.* at 6.
- "a patent from a small firm is more than twice as likely to be found among the top 1% highest impact patents than is a patent from a large firm." *Id.* at 12.
- "small firms are much more innovative per employee than are the large patenting firms." *Id.*
- "Innovation in small firms is . . . more closely linked to the scientific frontier." *Id.* at 20.

A subsequent study found that the "technologic influence" of such firms is increasing, *see Small Firms and Technology*, *supra*, at ii, with some even focusing *exclusively* on research and development. *See Small Serial Innovators*, *supra*, at 6 (noting that there were "a fair number of research companies with 0 sales" since such "firms exist to develop technology"). This new breed of business has established a new set of working relationships with other organizations. It is less integrated with established enterprises; it is increasingly virtual; and it relies upon networks to collaborate.[13] For technology networks, patents are the medium for exchange.

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[12] Industries "highly dependent" on such firms include biotechnology, medical electronics, medical equipment, pharmaceuticals, and telecommunications. *See* CHI Research, Inc., *Small Firms and Technology: Acquisitions, Inventor Movement, and Technology Transfer* 14-15 (2004) (hereinafter "*Small Firms and Technology*") (available at http://www.sba.gov/advo/research/rs233tot.pdf).

[13] *See* Susan Hockfield, President, Mass. Inst. of Tech., The University in the U.S. Innovation System, Address to the Bernard L. Schwartz Forum on U.S. Competitiveness in the 21st Century, Brookings Institution (Apr. 28, 2006) (available at http://web.mit.edu/hockfield/speeches/2006-innovation.html); ENTREPRENEURS, *supra*, at 4-5.

A prime example is the semiconductor industry, one of the nation's most strategically important technology sectors. That industry is witnessing a "disaggregation" of its previous vertical integration and an emergence of smaller, networked technology firms.[14] "Many experts say that, over time, nearly all electronics companies . . . will rely upon other[] [specialty companies] for product, design, testing, packaging and other functions," and they will "own only two things, their own IP around their core competency and a channel for selling to their customer."[15]

The three *amici* are representative of these trends. Each was founded as a small, specialty technology company. Each attracted risk capital, with investors banking on management's ability to develop, protect, and market a compelling technology. Each critically relied on the protections afforded by the Patent Act. And each is a participant in the disaggregation of the semiconductor and communications industries—*i.e.*, each *amicus* licenses the technology produced by its research efforts to other companies, which in turn use that technology to manufacture products.

For example, Tessera specializes in miniaturization technologies which enable the semiconductor industry to build smaller, faster, and more reliable electronic products. Tessera's miniaturization technology, which improves a wide range of wireless, computing, gaming, entertainment, medical, and defense-related electronic products, is licensed to over sixty companies—such as Intel, Samsung, Renesas, Toshiba, and Texas Instruments—and a number of

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[14] *See* REPORT OF THE DEFENSE SCIENCE BOARD TASK FORCE ON HIGH PERFORMANCE MICROCHIP SUPPLY 18-19 (Feb. 2005) (available at http://www.acq.osd.mil/dsb/reports/2005-02-HPMS_Report_Final.pdf).

[15] Karen D. Schwartz, *Can You Spell Disaggregation?* (Feb. 1, 2003) (available http://www.edn.com/article/CA271755.html?ref=nbsa).

universities. In 2006, it will spend millions of dollars on research and development. Based on the technological advances deriving from these efforts, it expects to file numerous new patent applications to add to its over 360 issued United States patents in its portfolio.

Qualcomm is a leading developer and innovator of numerous advanced semiconductor and wireless communications technologies. In 2005, Qualcomm spent over $1 billion on research and development, and is on pace to spend more in 2006. It presently has more than 4,000 United States patents and patent applications. Qualcomm's products are widely used in the manufacture of cellular telephones and other wireless devices, and it has licensed its technology to more than 125 leading telecommunications and consumer electronics equipment manufacturers around the world. Licensing its intellectual property enables its customers to design, manufacture, and sell products based on Qualcomm's industry-leading wireless technology. Qualcomm helped the wireless industry generate more than $150 billion in revenue in 2004 alone.

Finally, AmberWave is a semiconductor technology company focusing on an advanced form of silicon and other specialty materials that enhance the speed and reduces the energy consumption of semiconductor chips. Its technology is the result of more than fifteen years of research at MIT, AT&T Bell Labs, and its self-funded $25 million research facility. AmberWave has raised over $90 million in venture capital investment, spends over $8 million annually in research and development, and has a portfolio of over 150 issued and pending patents. AmberWave focuses its research and development specifically on bridging the gap between world-class research universities and commercial institutions by using intellectual property as a mechanism to do cooperative research, to aggregate technology from a variety of sources, and to transfer technology to its customers.

Amici depend upon strong and predictable intellectual property rights for numerous reasons. In a rapidly changing and disaggregating industry, they depend upon their ability to transfer rights to their technology to the network of other companies. In many cases, the transfer is an essential revenue generator.[16] In other instances, they may cross-license intellectual property with other companies. This cross-licensing of intellectual property rights is sometimes considered an independent form of capital itself. And each is naturally very dependent on investors who, in turn, must determine whether these companies have obtained, or are likely to obtain, intellectual property protection to protect their investment.[17] These companies realize, of course, that not all of their research and development efforts will result in economically valuable technology,[18] but the risk is tolerable because of the ability to profit from the exclusive rights to successful inventions granted by the patent system.[19]

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[16] *See* Robert Greene Sterne, *et al.*, *The 2005 U.S. Patent Landscape for Electronic Companies*, 823 *PLI/Pat* 293, 320-21 (2005) (the business model of companies like the *amici* is often wholly dependent on those companies being able to monetize their research and development efforts).

[17] *See Small Serial Innovators*, *supra*, at 8 ("venture capitalists need to see patents . . . to confirm the substance of the technology developed by the firm"); Beckerman-Rodau, *supra*, at 22 ("The economic potential provided by patents encourages capital investment both in research and development activities and in the manufacture and marketing of new technology."); Mark A. Lemley, *Reconceiving Patents in the Age of Venture Capital*, 4 J. SMALL EMERGING BUS. L. 137, 143-44 (2000) (noting a study showing "a strong positive relationship between venture capital financing and patenting").

[18] *See Innovate America*, *supra*, at 33 ("On average, only one in ten patents is ever commercialized."); *Small Serial Innovators*, *supra*, at 11 ("A patent represents a contribution to technical advance of unknown magnitude" and "a vast number [of patents] are almost worthless").

[19] *See* Beckerman-Rodau, *supra*, at 21 ("Many of the patents that result from research and development activities have little economic value.

Of course, whether or not *amici* and companies like them return a profit for their investors, their focus on research and development as a core competency furthers the constitutional objective of advancing the progress of science, serves the ultimate end of the patent system through the public disclosures of their inventions,[20] and is vital to the United States' economy in the 21st century.

For *amici*, rejecting the predictability of the current teaching-suggestion-motivation test in favor of the non-obviousness tests proposed by petitioner and the United States would undermine the very assumptions upon which these companies operate. Those subjective standards would invite the Patent and Trademark Office and the lower courts to engage in hindsight reconstruction. All technology companies would suffer as a result of the re-introduction of hindsight into the obviousness inquiry and the application of a subjective obviousness standard because of the increased risk that they would invest significant amounts in research that would be unprotected by any intellectual property rights.

The bottom line is that the standards proposed by petitioner and the United States would make patentability more unpredictable than under the current standard. The issuance of patents under the teaching-suggestion-motivation test is

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Nevertheless, it is the potential for economic gain that drives development of innovation that is subsequently protected by patent law.").

[20] "The fact that much patented technology lacks economic viability at the time of patenting does not diminish the substantial public benefit of such technology. Such information is widely available to the public via the public disclosure aspect of patent law. This increases the public storehouse of information which is beneficial to society. Knowledge and information of all types are the raw materials of research and innovation. Therefore, the more information that is available the more likely it will be used by others to develop additional innovations; and, the more innovations that are developed the more likely at least some of these will be highly useful to society." Beckerman-Rodau, *supra*, at 21.

predictable; that standard protects against hindsight reconstruction; and it results in stronger patents that are more difficult to invalidate. Investors who rely on both the predictability of the current patent system and the strength of the issued patents may well be discouraged from financing research if this standard were disturbed. Innovative companies would pay the price since investing in those companies would become more speculative. Such companies would be forced to curtail their innovative research due to financial constraints. The net result would be a reduction in research and development efforts, a reduction in patent applications flowing from such efforts, a reduction in patents granted, a reduction in the dissemination of information, and a reduction in overall innovation—all occurring to the detriment of the public and the nation's economy and all contrary to the promotion of scientific progress.

CONCLUSION

The judgment of the United States Court of Appeals for the Federal Circuit should be affirmed.

Respectfully submitted,

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